

MULET SALORT et al.  
Appl. No. 10/551,699  
Atty. Ref.: 4982-4  
Amendment  
Monday, March 3, 2008

**AMENDMENTS TO THE DRAWINGS**

Please insert the attached six (6) Replacement Sheets of drawings for the originally-filed eight (8) sheet of drawings. The Replacement Sheets do not include Figure 10 and Figure 10 (Continued) of the original drawings. Also attached are eight (8) Annotated Sheets showing the changes (deleting Figure 10 and Figure 10 (Continued)) in the Replacement Sheets. No new matter has been added.

**REMARKS**

Reconsideration is requested.

The specification has been amended to include the attached Sequence Listing. The attached paper and computer readable copies of the Sequence Listing are the same. No new matter has been added. The specification has been amended in page 14 and in the description of Figure 1 to include sequence identifiers, as required by the Examiner. No new matter has been added. Withdrawal of the objection to the specification is requested.

The figures have been revised to delete Figure 10 and Figure 10 (Continued) of the originally-filed drawings, as suggested by the Examiner to obviate the objection to the drawings. No new matter has been added. Withdrawal of the objection to the drawings is requested.

Claims 1 and 2 are pending. Claims 3-30 have been canceled, without prejudice, to advance prosecution. Claims 4-30 have been asserted by the Examiner to allegedly define eight (8) separately patentable inventions as detailed in the Office Action of July 10, 2007.

The Section 101 rejection of claims 1 and 2 is obviated by the above amendments. Withdrawal of the rejection is requested.

The Section 112, second paragraph, rejection of claim 1 is believed to be obviated by the amended recitation of claim 1 wherein the recited functions are as compared to a control plant. Support for the amendment is believed to exist, for example, in the disclosure at page 36, line 8 and page 6, lines 4-5. The control plant of

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the claims will be appreciated by one of ordinary skill in the art to be a plant which does not include the isolated nucleic acid encoding the plant class-2 non-symbiotic haemoglobin of the claims. The amendment is further submitted to obviate the Section 112, second paragraph, rejection of claims 1 and 2 stated in the paragraph spanning pages 7-8 of the Office Action dated October 1, 2007. The Section 112, second paragraph, rejection of claim 3 is moot in view of the above amendments. Withdrawal of the Section 112, second paragraph, rejection of claims 1-3 is requested.

The Section 112, first paragraph "enablement", rejection of claims 1-3 is believed to be obviated by the above amendments. Withdrawal of the "enablement" rejection is requested.

The Section 112, first paragraph "written description", rejection of claims 1-3 is believed to be obviated by the above amendments. The Examiner appears to appreciate on page 14 of the Office Action dated October 1, 2007, that the "specification describes increased growth rate and large inflorescence function of SEQ ID NO:4 when expressed in a transgenic plant..... The only species described in the specification is SEQ ID NO:3, which encodes SEQ ID NO:4." Withdrawal of the "written description" rejection is requested.

The Section 102 rejection of claims 1-3 over Alexandrov (EP 1033405) "taken with the evidence of" Trevaskis (PNAS, 94:12230-12230, 1997, is traversed. Reconsideration and withdrawal of the rejection are requested in view of the following distinguishing comments.

The Examiner is understood to believe that Alexandrov discloses a method of producing a transgenic plant expressing increased levels of transgenic protein, comprising transformation of the plant with an expression cassette comprising the nucleic acid of SEQ ID NO: 44959, which is allegedly identical to SEQ ID NO: 4.

The applicants submit, with due respect to the Examiner however, that Alexandrov et al. disclose over 80000 sequences and on page 328, a list of promoter types is provided for upregulating or downregulating expression of a nucleic acid that is operably linked thereto, covering various expression patterns. However the cited art does not disclose an expression cassette where the nucleic acid molecule encoding SEQ ID NO: 44959 is combined with a promoter for increasing expression of a class-2 non-symbiotic haemoglobin, as required by the claims. There is no mention of altered plant growth characteristics (that is increased yield, increased biomass, altered architecture or altered cell division) upon transformation of a plant with such an expression cassette. Haemoglobin may be described in paragraphs [0786] and [0787] but no guidance is provided for using haemoglobin in altering plant growth characteristics.

As the cited art is not believed to teach each and every aspect of the claimed invention, withdrawal of the Section 102 rejection is requested.

The claims are submitted to be in condition for allowance and a Notice to that effect is requested. The Examiner is requested to contact the undersigned, preferably by telephone, in the event anything further is required in this regard.

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Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By:                     /B. J. Sadoff/                      
B. J. Sadoff  
Reg. No. 36,663

BJS:  
901 North Glebe Road, 11th Floor  
Arlington, VA 22203-1808  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100

1/8

Name: at	Len: 162	Check: 5339	Weight: 1.00
Name: bn	Len: 162	Check: 8426	Weight: 1.00
Name: bv	Len: 162	Check: 6644	Weight: 1.00
Name: gh	Len: 162	Check: 7625	Weight: 1.00
Name: le	Len: 162	Check: 951	Weight: 1.00
Name: cg	Len: 162	Check: 1715	Weight: 1.00

//

1	50
at MGEIGFTEKQ EALVKESWEI LKQDIPKYSI HFFSQILEIA PAAKGLFSFL	
bn mgeivfteq ealvkeswei lkqdipkysl hffsqileia paakdmfsfl	
bv ---MTFTEKD EALVKESWDI MKQNIPEYSL RFFSIILEIA PAAKNMFSFL	
gh ---mgfteq eglvkeswev lkqdiphssl rffslileia pgaknmfsfl	
le ---mgftdkq ealvrdswef mkqdipqlsl rffslileia pvaknmfsfl	
cg ---maltekq eallkqswev lkqnipahsl rlfalileaa peskyvfsfl	

51	100
at RDSDEVPHNN PKLKAHAVKV FKMTCEIAIQ LREEGKVVVA DDTLQYLGSI	
bn rdtdevphnn pklkahavkv fkmtcetaiq lrekgvvva ddtlqylgsv	
bv RDSEEVQNN PKLKAHAIVK FKMTCESAIQ LREKGEVVVG ETTLKYLGA	
gh reseepqnn pklkahavkv fkmtcesaiq lrekgevvva ddtlkylgtv	
le kdsdelpenn pklrahavkv fkmtcesaiq lrekgevvvg ettlkylgsi	
cg kdsneipenn pklkahaavi fkticesate lrqkghavwd nntlkrlgsi	

101	150
at HLKSGVIDPH FEVVKALR TLKEGLG.EK YNEEVEGAW S QAYDHLALAI	
bn hfksgvidph fevvkealvr tlkeglg.ek yneevegaws kaydhlalai	
bv HLKNGVIDPH FEVVKQALLR TIEEASG.DK WSEELKCAWS VAYDHLAAAI	
gh hvksgvkdph fevvkeallr tieeaigee k wneemknawg eaydqlaeai	
le hlqkrvadph fevvkeallr tvkeatg.nk wkdemkeaws eaydqlasai	
cg hlnkkitdph fevmkgallg tikeai.ken wsdemgcawt eaynqlvati	

151	162
at KIEMKQEE S ~ ~	
bn kaemkqedsq kp	
bv KAEMKE* ~ ~ ~ ~	
gh kaemknhhde ta	
le kaemhaeaaa ~ ~	
cg kaemke ~ ~ ~ ~ ~ ~	

FIGURE 1

2/8

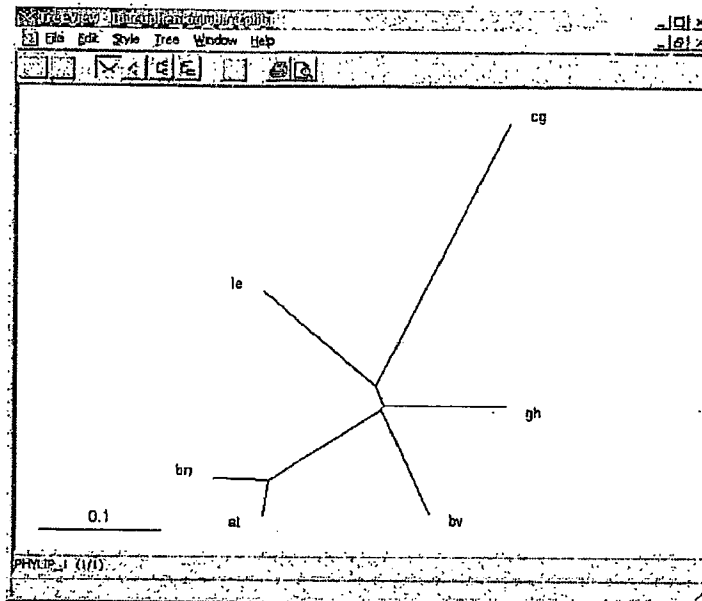


FIGURE 1 (continued)

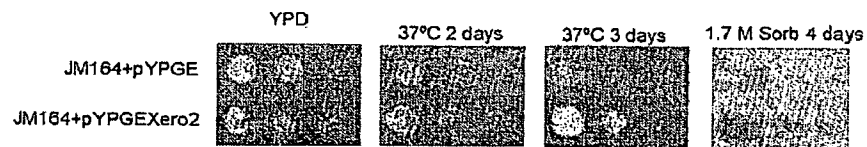
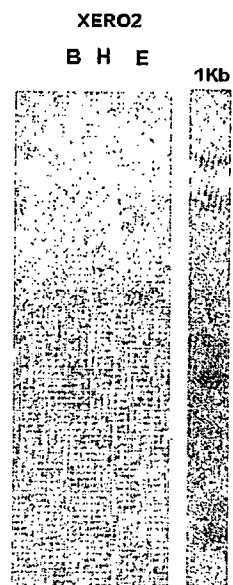
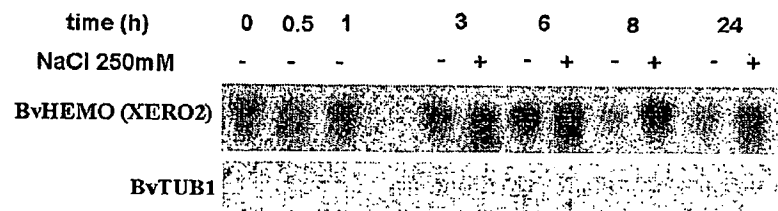


FIGURE 2

3/8



**FIGURE 3**



**FIGURE 4**



4/8

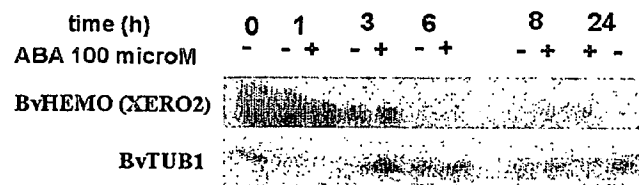


FIGURE 5

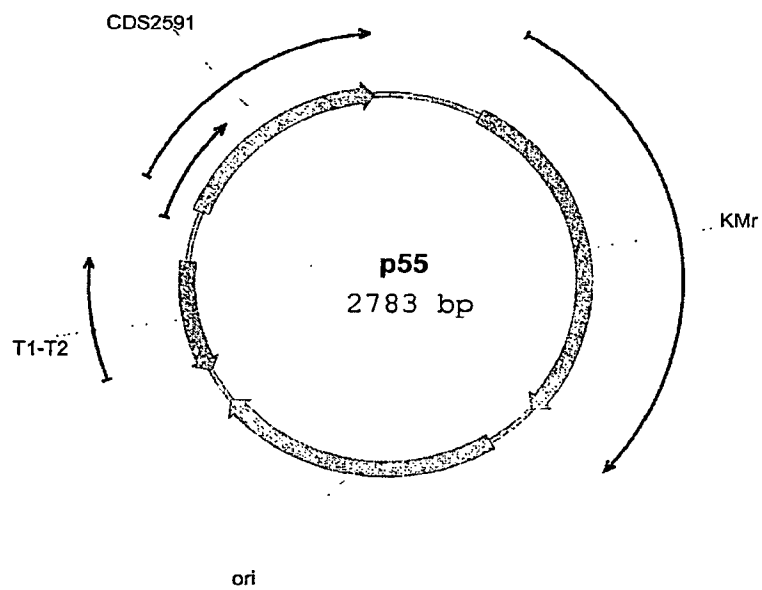


FIGURE 6

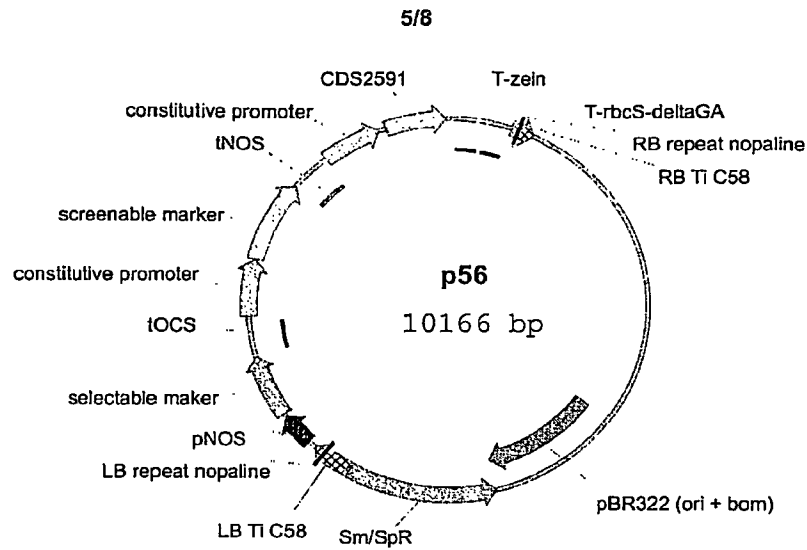


FIGURE 7

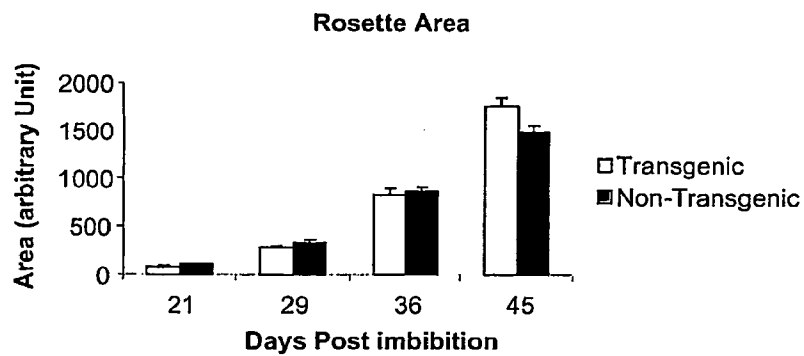


FIGURE 8

6/8



FIGURE 9

7/8

SEQ ID NO 1: Xero2 cDNA

tacaaaccacaaatttaagctattaatacactttctctgtcattttttgtgttccattta  
gtttctttttcttttaattaaaaacaaaactatgacttttacagagaaagatgaagcgttggt  
aaaagaatcatgggatataatgaagcaaaatcccagaatacagccttcggtttctcca  
taatatggaaaattgctccagcagccaaaaatagtctcatttttaagggatccagaggaa  
gttccacagaataatccaagctgaaagctcatgcaatcaagggttttaaaagacatgtga  
atcagccattcaacttcgagaaaaaggtgaagtgggtgtaggagagactaccttaaatatt  
tgggagctatccatttgaagaatggagtgattgatccccattttgaggtgtgaaacaagca  
ttattgagaacatagaagaagcaagtgggtgacaaatggagtgaagaatgaaatgtgcttg  
gagtggtgcctatgatcacttagctgcagccatcaaagctgagatgaggaaataggtagctt  
agttctcagtcgcaaaaagtattactctaaaaatattgaataaattctctattgttttga  
ggggaattattgttattgttgattctgactcacttatttctcagagtgacttgatatgggtg  
cttttcttgcccttattattgatttagcaagaaggaaatcaaatccataattattggtttaac  
catgtaaatagtgcataattaattgtgataaaaccttggtgattatgtaccttattgcaaatt  
taaaataatattccctcgtctttcatttttaaaaaaaataaaaaaaataaaaaa

SEQ ID NO 2: Xero2 deduced protein sequence

MTFEKDEALVKESWDIMKQNIPEYSLRFFSIITAIAPAAKNMFSFLRDSEVPQNPKLKA  
HAIKVFMTCESAIQLREKGEVVVGETTLKYIHAHLKNGVIDPHFEVVKQALLRTIEEASG  
DKWSEELCAWSVAYDHLAAAIKAEMKE

SEQ ID NO3: *Arabidopsis thaliana* class 2 non-symbiotic haemoglobin (GLB2), cDNA

attgaataccatataatagatccacagacatataaacacacaaatattcgtgtttttt  
caaactgtgagagaaaaagaaaagagaaagagatgggagagattgggtttacagagaagca  
agaagctttggtgaaggaatcgtgggagatactgaaacaagacatccccaaatacagccttc  
actctttctcacagatactgagatagcaccagcagcaaaaggcttggtctctttcctaaga  
gactcagatgaagtccctcaacaatcctaaactcaaagctcatgctgttaaagtcttcaa  
gatgacatgtgaaacagctatacagctgagggaggaaggaaagggtggtagtggctgacacaa  
ccctccaatatttagctcaattcatctcaaaagcggcgttattgacctcacttcgaggtg  
gtgaaagaagctttctaaaggacattgaaagaggggttgggggagaaaatacaatgaagaagt  
ggaagggtgcttggtctcaagcttatgatcacttggttttagccatcaagaccgagatgaaac  
aagaagagtcataaaacctattgatcatttggtatcgcatatgaatctattccacata  
catgatacactatacgtgtttctgtgtgtgtactatgttgctctctgactttctacagttc  
actattttattataaagaaggatcttggtgctatcattagggagatacgtgatactgtagtt  
cttcttgtaattgttattcgtgagaaatcatggtttgaagtatttatttccacaagatgg  
atgttagctggggatcattttacaatcattctacaataattttacttctc

SEQ ID NO 4: *Arabidopsis thaliana* class 2 non-symbiotic haemoglobin (GLB2), deduced protein sequence

MEIGFTEKQEAIVKESWEILKQDIPKYSLHFFSQILEIAPAAKGLFSFLRDSDEVPHNNPK  
LKAHAVKVFMTCEAIQLREEGKVVDITLQYLSIHLKSGVIDPHFEVVKQALLRTLKE  
GLGEKYNEEVEGAWSQAYDHLALAIKTEMKQES

FIGURE 10

8/8

SEQ ID NO 17: Brassica napus class 2 non-symbiotic hemoglobin (GLB2) cDNA sequence

atgggagagattgtgtttacggagaagcaagaagctttggtgaaggagcttggagatact  
aaagcaagatatcccaaatacagctcttcacttcttctcacagatactgggatagcaccag  
cagcaaaggacatgttctctttcctaagagacacagatgaagtccctcaacaatcctaaa  
ctcaaagctcatgctgtttaaagctttcaagatgacatgtgagacagctatcacagctgagga  
gaaaggaaaggtagtgtgtggtgacacacacctccaatacttgggctgttcatttcaaga  
gcggtgttcttgatcctcactttgaggtggtgaaagaggcatgtgaggacactgaaagaa  
gggttgggggagaagtacaatgaagaagtgaaggagcttgggtcaaggcttatgatcactt  
ggctttagccatttaaggccgagatgaaacaagaagactcaaaaaaccctaa

SEQ ID NO 18: Brassica napus class 2 non-symbiotic hemoglobin (GLB2), deduced protein sequence

MGEIVFTEKQEALVKESWEILKQDIPKYSLHFFSLEIAPAAKDMFSFLRDTDEVPHNNPK  
LKAHAVKVKMTCETAIQLREKGVVADTTLELGSVHFKSGVLDPHFEVVKALVRTLKE  
GLGEKYNEEVEGAWSKAYDHLALAIIKAEMKQDSQKP

SEQ ID NO 19: primer prm0545

ggggaccactttgtacaagaaagctgtcaaatgatcaatagggtttta

SEQ ID NO 20: primer prm06122

ggggacaagtttgtacaaaaagcaggcttaaacagtgagagaaaaagaaagagaga

SEQ ID NO 21: primer prm05447

ggggacaagtttgtacaaaaagcaggcttaaacatggctctcgtggaggata

SEQ ID NO 22: primer prm05448

ggggaccactttgtacaagaaagctgggtgatcatggaggtggagcag

SEQ ID NO 23: primer prm06021

ggggacaagtttgtacaaaaagcaggcttaaacatgacttttacagagaaagatgaagct  
tt

SEQ ID NO 24: primer prm06022

ggggaccactttgtacaagaaagctgggtctaagctacctatctctcatctcagc

FIGURE 12 (continued)